

REMARKS

This application has been reviewed in light of the Office Action dated January 8, 2004. Claims 1-5, 7, 9, 17-19, and 23-25 are pending in this application. Claims 10-16 and 20-22 have been canceled, without prejudice or disclaimer of subject matter. Claims 1-4, 9, and 23 have been amended as to matters of form only, and these amendments do not narrow the scope of any of those claims. Claim 1 is in independent form. Favorable reconsideration is requested.

The Examiner withdrew from consideration Claims 10-16 and 20-22, as being directed to a non-elected invention. Applicants have canceled these claims accordingly.

The Office Action rejected Claims 1 and 23-25 under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent No. 6,528,780 (Mitsuoka et al.), and rejected Claims 2-5, 7, 9, and 17-19 under 35 U.S.C. § 103 (a) as being unpatentable over Mitsuoka et al. in view of U.S. Patent No. 5,354,985 (Quate). Applicants respectfully traverse these rejections.

Applicants submit that independent Claim 1, together with the remaining claims dependent thereon, is patentably distinct from Mitsuoka et al. at least for the following reasons.

The aspect of the present invention set forth in Claim 1 is a probe for detecting near-field light or irradiating near-field light. The probe includes a cantilever having first and second ends, with the cantilever being supported at the first end by a substrate and having a second end that is free. The probe also includes a hollow tip formed at the free end of the cantilever, where the tip also has an end. A microaperture of the

probe utilizes the near field light formed at the end of the tip, and a groove is formed inside the cantilever, where the groove includes a hollow waveguide and a mirror. The mirror reflects the light entering from the microaperture toward the hollow waveguide or reflects the light transmitted in the hollow waveguide toward the microaperture.

Among the notable features of Claim 1 is that the probe for detecting near-field light or irradiating near-field light includes a groove formed inside a cantilever, with the groove having a hollow waveguide and mirror. With this arrangement, there is no optical absorption by the material constituting the waveguide and therefore the light transmission loss is low (see, e.g., the specification at page 9, lines 14-18).

Mitsuoka et al., as understood by Applicants, relates to an optical probe for a proximity field. The Office Action states that Mitsuoka et al. teaches a probe for detecting near-field light or irradiating near-field light that includes, among other things, ". . . a groove (13) formed inside said cantilever, said groove comprising a hollow waveguide (13) and a mirror (slanted bottom-right end of (13)). . ." The Examiner states that Figure 7 provides support for this assertion. Applicants submit that the Mitsuoka et al. specification, at column 9, lines 46-61, discusses a cantilever-type optical waveguide probe. The optical waveguide 13 is shown in Figure 7. Applicants note, however, that nothing in this section of the specification, or Figure 7, indicates that the optical waveguide 13 is hollow. In addition, in regard to the Examiner's comment that the mirror is shown in Figure 7 on the slanted bottom-right end of the optical wave guide (reference numeral 13), the Mitsuoka et al. specification at column 10, lines 5-9, states that "[i]ncidentally, in Embodiment 5, the planar microlens 5 (emphasis added) may be structured by a microlens substrate 6, Fresnel zone plate 7 and holographic lens 8 or a parabolic mirror 10, mirror 11

(emphasis added) and light transmission member 12 . . ." Applicants submit that this section of the specification suggests that a mirror is part of the microlens 5, not the groove as recited in Claim 1. In summary, Applicants submit that nothing has been found in Mitsuoka et al. that would teach or suggest a probe for detecting near-field light or irradiating near-field light that includes a groove formed inside a cantilever, with the groove having a hollow waveguide and mirror, as recited in Claim 1.

Accordingly, Applicants submit that at least for these reasons, Claim 1 is patentable over Mitsuoka et al.

A review of the other art of record, including Quate, has failed to reveal anything that, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as applied against independent Claim 1. Therefore, Claim 1 is respectfully submitted to be patentable over the art of record.

The other rejected claims in this application depend from Claim 1 discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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